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ABSTRACT
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(54) RETAINING CLIP WITH RATCHET CABLE STRAP
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(74) CL
(57) CLAIM

1. A retaining clip for holding a sheet material in position relative to a support structure, said retaining clip comprising a strap, a plurality of first holding devices on a first face of said strap, said strap having one end thereof secured to the undersurface of a buckle; said buckle having an opening therethrough for the passage therethrough of a second end of said strap, and a tongue for co-operating with said first holding device for releasably holding said strap in a selected position in said opening, and means for releasably holding said sheet material and said buckle in a secured relationship.

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ORIGINAL

Provisional Specification
No. PD4331 filed 9th May 1978

W. A. DEUTSCHER PROPRIETARY
LIMITED

AUSTRALIA

The Patents Act 1952-1973

COMPLETE SPECIFICATION FOR THE INVENTION ENTITLED:

"RETAINING CLIP"

The following statement is a full description of this invention, including the best method of performing it known to us:-

The present invention relates to a retaining clip for holding a sheet material and it refers particularly, though not exclusively, to a device for releasably retaining horticultural shade cloth to frames or posts or the like.

In nurseries and gardens it is sometimes required that the vegetables or plants must be shaded to protect them from excessive sunlight, frosts, or strong winds; depending upon the season. Usually this protection is in the form of a framework with a shade cloth or shade mesh attached thereto. The shade cloth or shade mesh (hereinafter termed "shade cloth") has a number of holes, with or without eyelets, around its periphery through which holes lacing or the like is passed so that the cloth can be securely held to the framework or posts.

The disadvantages of this type of arrangement are that the holes tend to tear or expand or the eyelets tend to come away from and tear the shade cloth. The particular form of attachment of the eyelets is particularly time consuming and special chores are required, and the means by which the cloth is attached to the framework is extremely time consuming. Furthermore, to dismantle the arrangement takes a large amount of time.

It is therefore the principal object of the present invention to provide a retaining clip for holding a sheet material in position relative to a

support structure and which will not tend to
excessively tear the material when in use. A
further object is to provide a retaining clip for
holding a sheet material in place relative to a
support structure which is easy to manufacture and
requires no special tools to use.

With the above and other objects in mind the
present invention provides a retaining clip for
holding a sheet material in position relative to a
support structure, said retaining clip comprising a
strap, a plurality of first holding devices on a first
face of said strap, said strap having one end thereof
secured to the underside of a buckle; said buckle
having an opening therethrough for the passage
therethrough of a second end of said strap, and a
tongue for co-operating with said first holding devices
for releasably holding said strap in a selected
position through said opening, and means for
releasably holding said sheet material and said buckle
in a secure relationship.

In order that the present invention may be
clearly understood and readily put into practical
effect there shall now be described by way of non-
limitative example only preferred constructions of a
retaining clip incorporating the principle features of
the present invention, their description being with
reference to the accompanying illustrative drawings.
In the drawings:-

Figure 1 is a front perspective view of a first embodiment of a retaining clip;

Figure 2 is a rear perspective view of the upper portion of the first embodiment of Figure 1;

5 Figure 3 is an enlarged rear view corresponding to the perspective view of Figure 2;

Figure 4 is a vertical cross-section along the lines of and in the direction of arrows 4-4 of Figure 3;

Figure 5 is an exploded view showing the main elements of the retaining clip in an in use situation;

Figure 6 is a vertical cross-section corresponding to Figure 5 showing the retaining clip in actual use; and

Figure 7 is a vertical cross-section similar to that of Figure 6 showing a second embodiment of a retaining clip in an in use situation.

To firstly refer to Figures 1 to 6, there is shown a retaining clip which basically comprises a strap 12, a buckle 14, and a shade cloth retaining device 16.

The strap 12 is an elongate strap and has a pointed lower end 20. The upper face 20 of the strap has a number of notches 22 therein, which notches 22 are of lesser width than the face 20 and are of a length far less than the width. The notches 22 are regularly and evenly spaced along a substantial part of the length of the strap. The notches 22 do not extend as far as the pointed end 18 of the strap and nor do they extend to the buckle 14. The notches 22 do not pass through the strap, although this may be done if desired. The strap

is of rectangular cross-section although a strengthening rib may be provided on the rear surface 24 if desired.

5 The buckle 14 is shaped somewhat like an inverted truncated square pyramid and has a circular top plate 26, flat side walls 28, angled front face 30 and a rear face 32 angled in the opposite direction. The flat side walls 28, front face 30 and rear face 32 together with a base 34 and circular plate 26 define an opening 36 within the buckle 14.

10 Extending upwardly from the base 34 and outwardly towards and through the rear face 32 is a tongue 38. This is clearly shown in Figure 4. The tongue 38 has an upper surface 40 from which there extends a lug 42. The distance between the top of the lug 42 and the
15 lower surface 44 of the plate 26 is less than the thickness of the strap 12. The two flat side walls 28 have grooves 46 on their inner surfaces so as to guide the strap 12 through the opening 36. The distance between the grooves surfaces is slightly greater than the
20 width of the strap 12. Thus, the grooves 46 provide a guide path for the strap 12. So as to ensure correct operation, there is provided a rib 48 projecting downwardly from the lower surface 44 of plate 26 into the opening 36. This rib ensures that the strap 12 when
25 passed through the opening 36 will not tend to deform in shape. The rib is slightly tapered at the end nearest the front face 30 so as to provide a proper guiding for the strap 12 into the opening 36 and the grooves 46.

Projecting upwardly from and concentric with the circular plate 26 is a screw-threaded spindle 50. The spindle is of a height greater than the height of the base and which height is sufficient to perform the necessary function. Extending upwardly from the spindle is a cap 52. The cap 52 has a central hole 54 which is provided with an inwardly projecting thread 56 so that the thread 56 may engage with the threaded spindle 50 to enable the cap to pass over the spindle. The cap 52 is somewhat saucer shaped in that it has a flat central portion 58 and a flared outer portion 60. On the rear surface 62 there are provided four mutually perpendicular ribs 64 which not only strengthen the cap 52 but also provide a means whereby the cap 52 may be easily rotated by a user.

As can be seen from Figure 1, the entire retaining clip is designed to be manufactured as a one-piece moulding of a plastics material which has the necessary rigidity for the purposes of operation of the buckle 14 and the shade cloth retaining device 16 and also the necessary flexibility to enable the strap 12 to be passed around the article and for the tongue 38 to be able to be depressible.

To use the particular retaining clip illustrated in Figures 1 to 6, the cap 52 is first removed from the top of the spindle 50. Preferably, the two are held together by a small section of material which is easily torn to separate the two and which will provide for a

small point on the end of the spindle 50 when the cap 52 is removed. Once the cap has been removed, the spindle 50 is passed through the shade cloth 66. If this is on the outer periphery of the shade cloth 66, the shade cloth is preferably folded back upon itself for strengthening reasons. The cap is then placed over the spindle 50 and rotated until the shade cloth 66 is held securely between the circular top plate 26 and the cap 50. It is to be noted here that preferably the diameter of the central portion 58 of the cap 52 is slightly greater than the diameter of the top plate 26. This means that the shade cloth 66 is caught between the top plate 26 and the peripheral join of the central portion 58 with the flared portion 60. Once the cap 52 has been secured tightly - the rib 64 assisting in this operation - the strap is then passed around the support structure 68 which, in this case, is a tube and is passed through the front face 30 of the buckle 14, through the grooves 56 and out through the rear face 32. To assist this, the tongue 38 is preferably pressed downwardly. Once the strap 12 has been pulled tightly around the support structure 68 the tongue 38 is released so that the lug 42 on the upper surface 40 thereof engages in a notch 22 on the front face 20 of the strap 12. The strap may be moved slightly to enable proper engagement. The lug 42 will not disengage readily from the notch 22 because the rib 48 tends to force the strap 12 downwardly to assist in the engagement and the natural resiliency of the tongue 38 is such that it will

also aid in the engagement.

At times, it has been found necessary to join two lengths of shade cloth at a location where it was not convenient to secure each length to a support structure. If this is desired then the present invention provides a solution. All that is necessary is that the strap 12 is removed from the buckle 14, the cap 52 removed from the spindle 50, and then the spindle passed through the end of each of the lengths, the cap 52 placed on the spindle and tightened thereupon so as to secure the two lengths together. Due to the particular configuration of the cap 52 and the top plate 26, the shade cloth 66 would not tend to tear as the point of securing is remote from the hole. This is an important advantage of the present invention as the tearing of the shade cloth would eventually cause the destruction of the entire assembly.

In Figure 7 there is shown an alternative embodiment. Here, there is shown a retaining clip 110 which is adapted to hold a shade cloth 166 in position relative to a support structure 168. The retaining clip 110 has a strap 112, a buckle 114, and a cap 152.

The particular strap 112 is similar to the strap 12 of the first embodiment except that instead of having a number of notches 22 along its length it has a number of barbs 122 towards its outer end. These barbs are square edged at the end thereof nearest the buckle 114 and have a sloping face. The purpose of this is to provide for a sloping approach surface but a square holding surface.

At the other end of the strap 112 there are a number of second barbs 123. These second barbs 123 are designed to co-operate with the cap 152 to hold the cap in position relative to the strap 112. The cap 152 has a hole 154 at the centre thereof, which hole provides for an outwardly facing barb engaging surface 155. Thus, the cap is passed along over the strap 112 and engaged with the barbs 123 to hold it in the necessary position.

The buckle 114 is the same as the buckle 14 of the first embodiment except that the circular top plate 26 is of significantly reduced diameter such that a small top plate 126 is provided. This means that the top plate 126 is merely provided to provide some means of holding the barbs 122 of the strap 112 into engagement with the lug 142 on the upper surface 140 of the tongue 138.

The use of this particular retainer clip 110 is that the strap 112 would be passed through the hole in the shade cloth 166 and then through the central hole 154 in the cap 152. The strap 112 would then be passed around the support structure 168 and through the buckle 114. The cap 152 would then be pushed along the strap 112 until it engaged tightly upon the barbs 123. This would force the shade cloth 166 into the form shown and would hold the shade cloth in a tight fit between the cap 152 and the buckle 114. The strap 112 would then be pulled tight around the support structure 168 so that the barbs 122 engaged with the lug 142 on the tongue 138 and thus hold the entire assembly in relation to the support structure 168.

With either embodiment it is possible to remove the strap or a significant portion of the strap to enable the retaining clip to be used to hold two lengths of shade cloth together. The clip of either embodiment can do this and all that is required is that the cap and the buckle be used in the designated manner. As the strap or a major portion of the strap would not be required, it could simply be removed by cutting or the like.

Whilst there has been described in the foregoing description a number of embodiments of a retaining clip incorporating the principle features of the present invention it will be understood by those skilled in the art that many variations or modifications in details of design or construction may be made without departing from the essential nature of the present invention, the scope of which is to be determined from the following claims.

The Claims defining the invention are as follows:

1. A retaining clip for holding a sheet material in position relative to a support structure, said retaining clip comprising a strap, a plurality of first holding devices on a first face of said strap, said strap having one end thereof secured to the undersurface of a buckle; said buckle having an opening therethrough for the passage therethrough of a second end of said strap, and a tongue for co-operating with said first holding device for releasably holding said strap in a selected position in said opening, and means for releasably holding said sheet material and said buckle in a secured relationship.

2. A retaining clip as claimed in claim 1, wherein said tongue is located in said opening through said buckle, said tongue having a lug projecting upwardly from an upper surface thereof so as to co-operate with said first holding devices for releasably holding said strap in a selected position in said opening.

3. A retaining clip as claimed in claim 1 or claim 2, wherein said first holding devices comprise a plurality of notches in said first face of said strap, said notches being equally and regularly spaced along the major portion of the length of said first face of said strap.

4. A retaining clip as claimed in any one of claims 1 to 3, wherein said means for releasably holding said sheet material and said buckle in a secured relationship

comprises a threaded spindle extending upwardly from said buckle and a cap adapted to engage with said spindle to provide said releasable holding.

5. A retaining clip as claimed in claim 4 wherein said cap is saucer-shaped and has a central portion of a diameter slightly greater than the diameter of said buckle and a flared outer portion, said central portion having a central hole therein adapted for threading engagement with said threaded spindle.

6. A retaining clip as claimed in claim 4 or claim 5 wherein said cap has a plurality of equally spaced ribs on a rear surface thereof, said ribs providing a gripping means for a user.

7. A retaining clip as claimed in claim 1 or claim 2 wherein said first holding devices comprise a plurality of barbs equally spaced along said first face of said strap and providing a square retaining edge to co-operate with said lug on said upper surface of said tongue.

8. A retaining clip as claimed in claim 1 or claim 2 or claim 7 wherein said strap has a plurality of second holding devices adjacent said buckle, said plurality of second holding devices being adapted for co-operation with a cap for releasably holding said sheet material and said buckle in a secured relationship.

9. A retaining clip as claimed in any one of claims 1 to 8 wherein said retaining clip is made as a one-piece plastics moulding.

10. A retaining clip substantially as
hereinbefore described with reference to Figures
4 to 6 or Figure 7 of the accompanying drawings.

D A T E D this 7th day of May, 1979.

W. A. DEUTSHER PROPRIETARY LIMITED

By its Patent Attorneys:

CALLINAN AND ASSOCIATES

Henry W. Ball

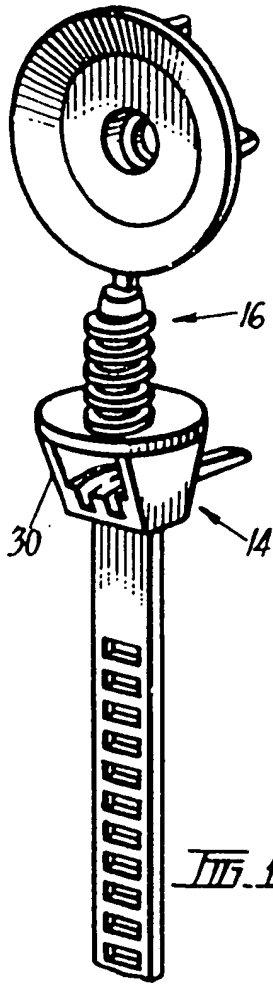


FIG. 1.

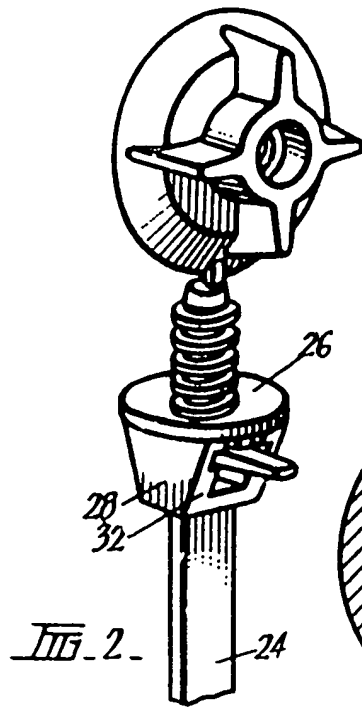


FIG. 2.

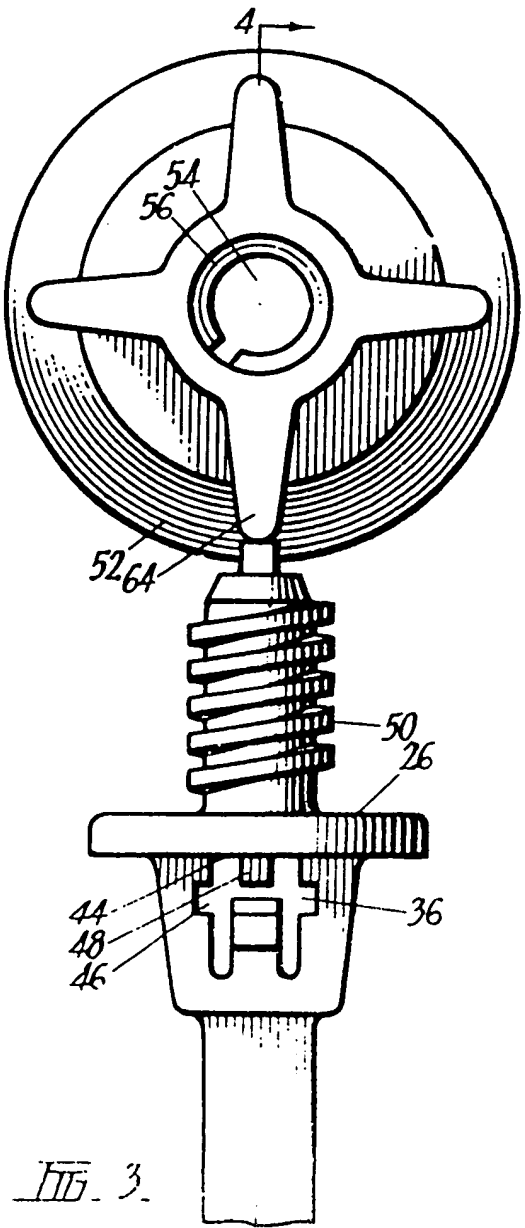
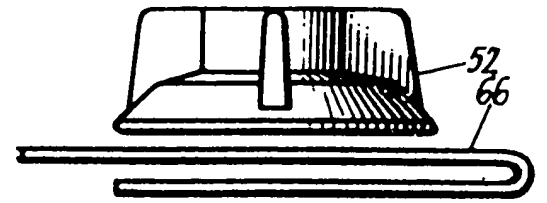


FIG. 3.

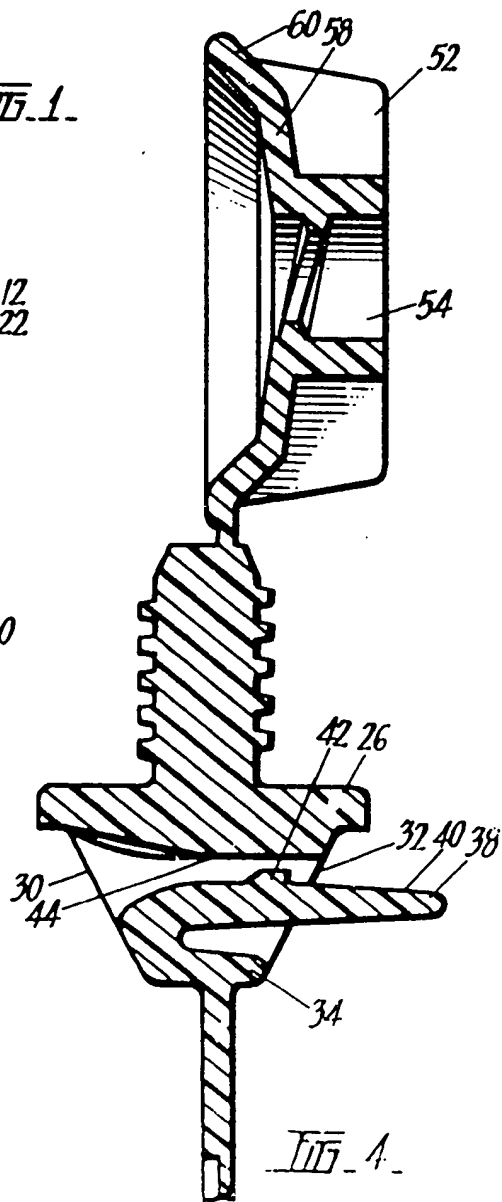
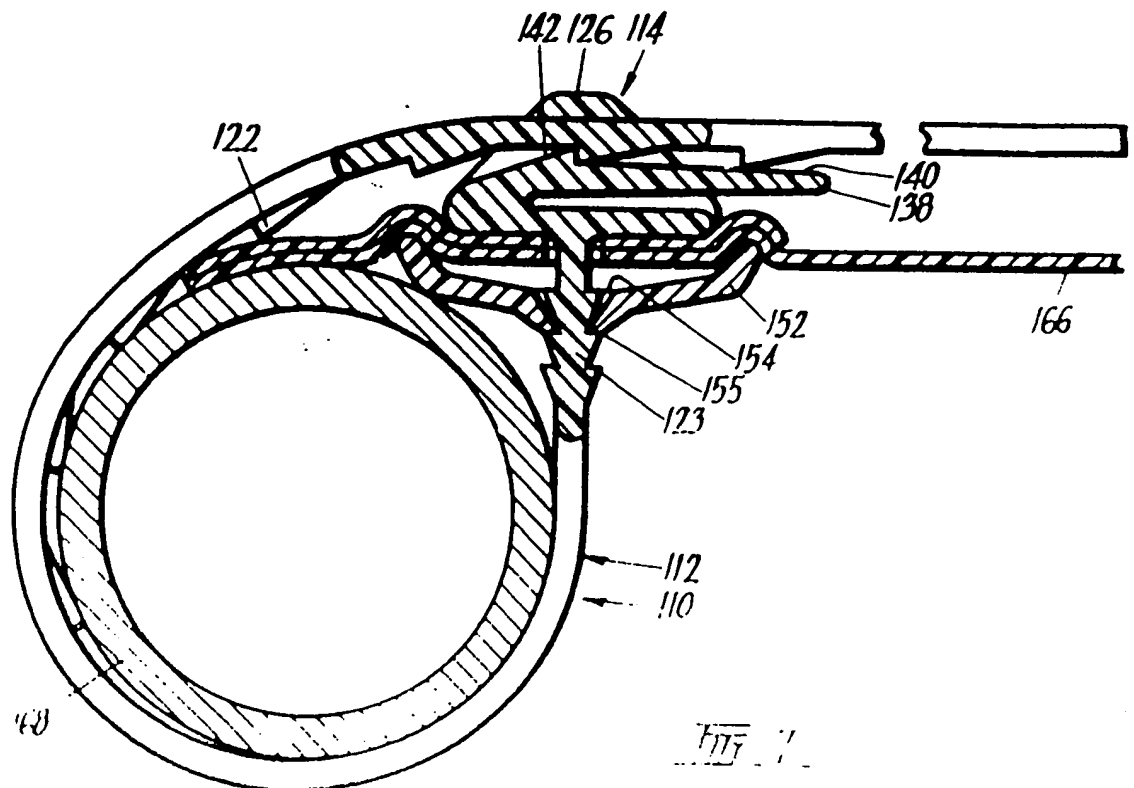
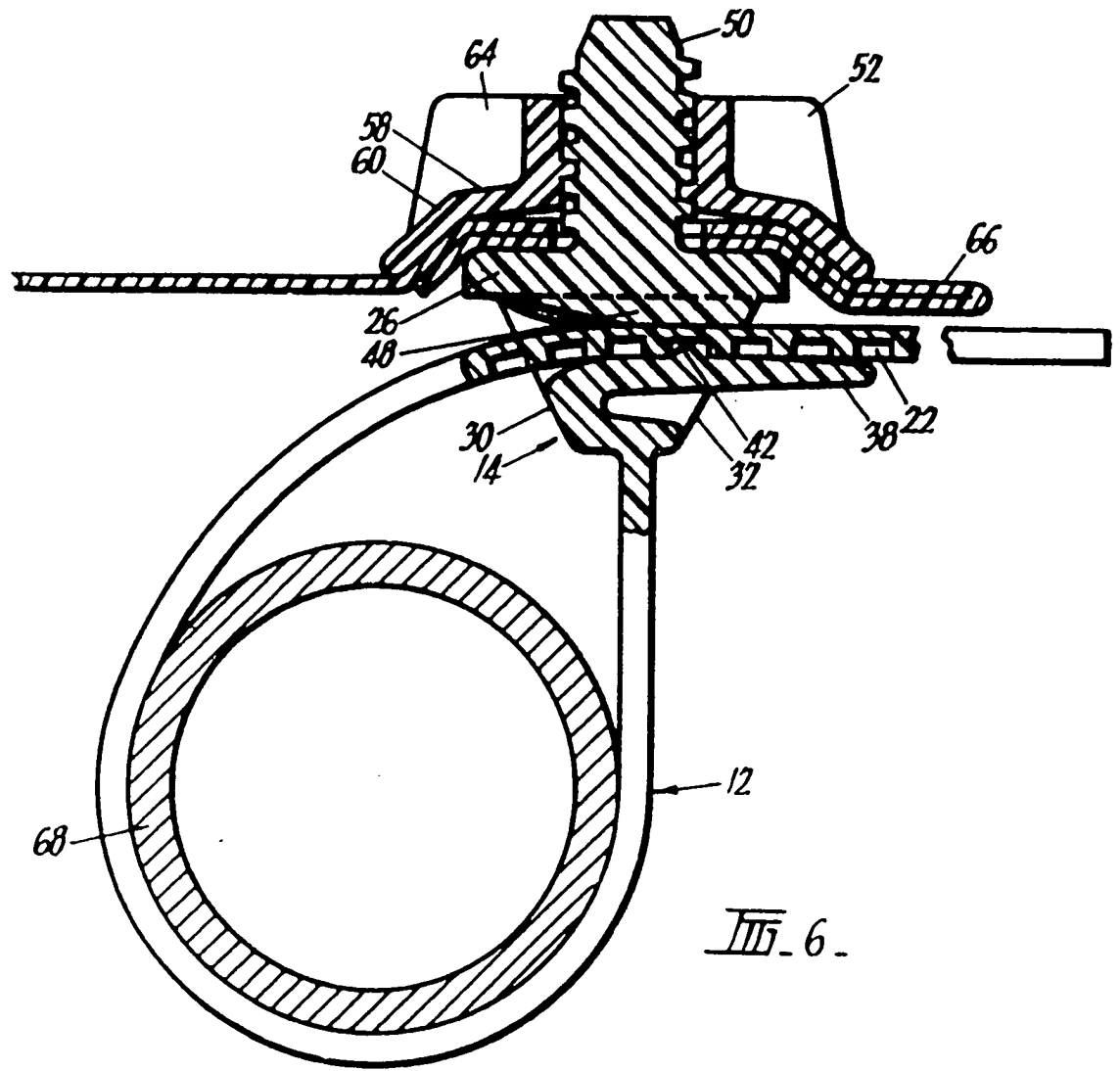


FIG. 4.



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